

REMARKS

Claims 25, 27, 29-32, 34-41, 43, 44, 46-52, and 54 are currently pending in this application. Claims 42, 45, and 53 have been cancelled, without prejudice. Claim 41 has been amended to incorporate the subject matter of now-cancelled dependent claim 45. Claim 43 has been amended to more clearly define the invention. No new matter has been added by these amendments.

Rejections under 35 U.S.C. § 103(a)

Claims 25, 27, 29-32, 34-41, 43, 44, 46-52, and 54 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,200,347 to Anderson et al. The Applicants respectfully traverse this rejection because the cited reference does not anticipate or render obvious the claimed invention as a whole.

For the Examiner's convenience, independent claims 25, 41, and 54, as currently pending, are reproduced below with portions italicized for emphasis.

25. (Previously Amended) An implant comprising:
a body with first and second ends and a plurality of through-holes extending between the ends;
a first and second cortical end cap disposed on each end of the body, at least one of the end caps comprising a height and a plurality of receiving regions having a depth and a bearing surface at an end therein; and
a plurality of cortical struts;
wherein the depth of the receiving regions is less than the height of the end cap so that the receiving regions do not extend completely through the end cap; and
wherein each cortical strut is disposed in one of the through holes of the body and mates in one of the receiving regions of the cap so that at least a portion of the struts bear against at least a portion of the bearing surface.

41. (Currently Amended) An implant sized and configured for placement between adjacent vertebral bodies, the implant comprising:
a first cortical end cap having a top surface for engaging a vertebral body, a bottom surface and a receiving region disposed therebetween;
a second cortical end cap having a top surface for engaging a vertebral

body, a bottom surface, and a receiving region disposed therebetween;
a cancellous body having a first end for engaging the bottom surface of the first cortical end cap, a second end for engaging the bottom surface of the second cortical end cap, and at least one through-hole extending therebetween;
at least one cortical strut disposed in the at least one through hole formed in the body and in the at least one receiving region formed in the first and second end caps;
wherein the at least one receiving region formed in the end caps comprises a recess that does not extend completely through the end cap; and
wherein the end caps are sized and dimensioned to serve as load-distributing members and the at least one cortical strut is sized and configured to serve as a load-bearing member.

54. (Previously Presented) An implant sized and configured for placement between adjacent vertebral bodies, the implant comprising:
a first cortical end cap having a top surface for engaging a vertebral body, a bottom surface, a height dimension extending between the top surface and the bottom surface and at least one recess disposed therein;
a second cortical end cap having a top surface for engaging a vertebral body, a bottom surface, a height dimension extending between the top surface and the bottom surface and at least one recess disposed therein;
a cancellous body having a first end for engaging the bottom surface of the first cortical end cap, a second end for engaging the bottom surface of the second cortical end cap, and at least one through-hole extending therebetween;
at least one cortical strut disposed in the at least one through hole formed in the body and in the at least one recess formed in the first and second end caps;
wherein the first and second ends of the cancellous body do not engage the vertebral body; and
wherein at least one of the recesses formed in either of the first or second end cap has a depth less than the height of the end cap so that the recess does not extend completely through the end cap.

Independent claims 25, 41 and 54 all recite an implant having, *inter alia*, a cortical end cap with at least one recess or receiving region that does not extend completely through the end cap. The Examiner stated that Anderson discloses the invention as substantially claimed, except it “does not disclose a cap having a recess that does not extend completely through the end cap. . . .” The Examiner further stated that it would have been a matter of obvious design choice to modify Anderson to have this feature because “Applicant has not

disclosed that [this feature] is used for a particular purpose or solves a stated problem,” and that one of ordinary skill in the art would have expected the invention to work equally well with this feature because “[it] will keep the implant attached together.” Applicants respectfully disagree.

Contrary to the Examiner’s assertions, the invention of claims 25, 41, and 54 is nonobvious and provides an advantage over the prior art. When in use, the claimed implant can be placed between two adjacent vertebrae with each of the cortical end caps in contact with one of the adjacent vertebrae. The forces between the adjacent vertebrae are applied to each of the cortical end caps, and transferred to one or more cortical struts. Because at least one of the recesses or receiving regions does not extend completely through the end cap, forces from the one or more cortical struts are transferred to the cortical end cap and are dispersed over the cortical end cap before being applied to the respective vertebrae – as opposed to being applied directly from the cortical strut to the vertebrae – thereby reducing the formation of stress concentrations on the vertebrae. Thus, the claimed invention as a whole provides an advantage over Anderson, which discloses cortical pins 7 that extend completely through cortical planks 70.

In addition, it would not have been a matter of obvious design choice to modify Anderson to have the features of claims 25, 41, and 54, because there is no motivation or suggestion in the prior art to modify Anderson to have the claimed features. In each embodiment of Andersen, the cortical pins 7 extend sideways through the cortical planks 70 and cancellous plank 73, and apparently serve primarily *to hold the planks together*. This is in contrast to the claimed invention in which the cortical struts typically extend in the direction of the spine and bear at least a portion of the forces transmitted between the

adjacent vertebrae. Because the sideways-extending cortical pins 7 of Andersen do not appear to bear a significant amount of the forces between the adjacent vertebrae, one of ordinary skill in the art would not be motivated to modify the holes 5 in cortical planks 70 to evenly distribute forces from the cortical pins 7 to the vertebrae – because the cortical pins 7 apparently do not transmit any forces directly to the vertebrae. Accordingly, there is no motivation or suggestion in the prior art to modify Anderson to have the claimed features. Therefore, Applicants submit that amended independent claims 25, 41, and 54 are patentable over Anderson. Claims 27, 29-32, 34-40, 43, 44, and 46-52 all depend from allowable independent claims, and are allowable for at least the same reasons as their respective base claims, as well as for reciting additional features.

Conclusion

In view of the foregoing, Applicant respectfully requests entry of the amendment, reconsideration of this application, and allowance of the pending claims. Applicant respectfully invites the Examiner to contact the undersigned at (202) 739-5713 if there are any outstanding issues that can be resolved via a telephone conference.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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